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Via Federal Express and Electronic Mail

March 4, 2016

Department of Conservation
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ATTN: UIC Discussion Draft

UIC.Regulations@conservation.ca.gov
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RE: SoCalGas Comments on Pre-Rulemaking Discussion Draft of Updated Underground Injection Control Regulations

To the Department of Conservation:

Southern California Gas Company ("SoCalGas") appreciates the opportunity to submit comments on the Pre-Rulemaking Discussion Draft for Updated Underground Injection Control Regulations (the "Pre-Rulemaking") proposed in the Notice of Pre-Rulemaking Public Comment Period issued by the Department of Conservation, Division of Oil, Gas and Geothermal Resources (the "Division" or "DOGGR") on January 21, 2016.[1]

As the Division knows, SoCalGas owns and operates two types of wells that could be impacted by the Pre-Rulemaking. First, SoCalGas has a limited number of Class II wells (i.e., fluid injection wells associated with oil and gas production). Second, SoCalGas operates a number of natural gas storage injection wells used to inject and withdraw natural gas from its underground storage facilities.

In these comments, we refer to the changes proposed as "proposed" sections of the Underground Injection Control Regulations and to the currently effective regulations as the "existing" sections.

[1] Comments are submitted pursuant to the March 4, 2016 deadline provided in the Division's email to SoCalGas and other interested parties. See E-mail from Department of Conservation, Division of Oil, Gas and Geothermal Resources to UIC Regulations Information Listserv (Feb. 12, 2016 4:02 PM PST).

1. The Pre-Rulemaking is not Required by the Corrective Action Plan and is not Supported by Record

According to the "Notice of Pre-Rulemaking Comment Period" released by the Division, the proposed rulemaking is part of the corrective action plan agreed to by the Division, the State Water Resources Control Board and the United States Environmental Protection Agency ("EPA") to bring the State's Class II Underground Injection Control ("UIC") Program into compliance with the Safe Drinking Water Act (the "Corrective Action Plan"). As discussed below, the Pre-Rulemaking is misplaced and contrary to law in at least two respects.

A. Changes to the Existing Class II UIC Program

The Corrective Action Plan is designed to remedy certain issues identified by the EPA with the Division's implementation of the federal Class II UIC program in California. The Corrective Action Plan, however, does not require DOGGR to modify the federal rule to create a different state program with rules that are different and potentially inconsistent with applicable federal rules. The Division has not identified any support that would justify the proposed departures from and expansion of the federal Class II UIC program. The changes, in addition to being unsupported, will introduce a new layer of requirements, which may create confusion in the industry and result in a diversion of resources without a clear environmental benefit.

B. Expansion of the Class II UIC Program to Natural Gas Storage Projects

The Division's existing Class II UIC program covers the same categories of wells that are defined as Class II wells under the federal Safe Drinking Water Act ("SDWA") UIC program. See DOGGR, Application for Primacy in the Regulation of Class II Injection Wells Under Section 1425 of the SDWA (April 1981). As discussed below, however, natural gas storage wells are not and have never been Class II wells under SDWA, and DOGGR has not provided or identified any basis supporting this expansion.

When EPA first adopted the UIC regulations in 1980, it explained that Class II wells "include all those covered by the proposal except those injecting natural or synthetic gas" for purposes of storage. 45 Fed. Reg. 33,290, 33,329 (May 19, 1980) (emphasis added).[2] These wells were preliminarily intended to be regulated as Class V injection wells, but Congress ultimately decided to exclude them altogether from underground injection control programs as part of the SDWA Amendments of 1980. See P.L. 96-502 (HR 8117) (Dec. 5, 1980).

The term "underground injection" in the SDWA, since it was first enacted in 1974, has generally been defined in the context of potential "endangerment of drinking water sources" as "the subsurface emplacement of fluids by well injection." 42 U.S.C. § 300h(d)(1). As a result of the 1980 amendments, the definition of "underground injection" excludes the "underground injection of natural gas for purposes of storage" from the scope of state UIC programs. 46 Fed. Reg. 43,156 (Aug. 27, 1981) ("Storage of hydrocarbons which are of pipeline quality and are gas

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[2] EPA, Consolidated Permit Regulations: RCRA Hazardous Waste; SDWA Underground Injection Control; CWA National Pollutant Discharge Elimination System; CWA Section 404 Dredge or Fill Programs; and CAA Prevention of Significant Deterioration.

at standard temperature and pressure is no longer regulated under these regulations as a result of the 1980 amendments to the Safe Drinking Water Act.")[3] Congress reaffirmed this exclusion in the Energy Policy Act of 2005, which reflects a careful and reasoned legislative judgment that the UIC Program should not apply to natural gas storage operations. See 42 U.S.C. § 300h(d)(1)(B)(i). Today, the definition of Class II wells as provided by the federal regulations also clearly excludes natural gas storage wells. See 40 C.F.R. § 144.6; 40 C.F.R. § 146.5. Based on the foregoing, the Pre-Rulemaking's proposed inclusion of natural gas storage wells within the state's UIC Program is contrary to the SDWA.

As demonstrated in our comments, below, there are good reasons why Congress and EPA have chosen to treat natural gas storage wells differently and to exclude them from the regulations designed for Class II wells. Many of our comments stem from the fact that the Pre-Rulemaking attempts to address both Class II wells and natural gas storage wells with the same regulatory framework. For many of the proposed regulations, the significant differences between Class II wells and natural gas wells make it difficult to apply the same regulations to both types of wells. Furthermore, the Division has not identified any basis for expanding the scope of the Class II program – whether as it exists today or as the Division proposes to amend it in the Pre-Rulemaking – to natural gas storage injection wells.

2. Definition of "Underground Injection Project"

Proposed Section 1720.1 would define "underground injection project" to include "gas storage projects." As indicated above, this definition appears to extend the current federal Class II UIC Program to natural gas injection wells, which is inconsistent with accepted industry practice and the federal regulations, and not necessary to achieve the purpose of the Corrective Action Plan. The Pre-Rulemaking is particularly problematic in this regard because it improperly fails to distinguish between wells for injection of natural gas for storage purposes and injection wells for other purposes, such as secondary production and wastewater disposal. Indeed, there are significant differences between these two types of wells.

First, the Pre-Rulemaking fails to recognize the material differences between the toxicities of substances injected in Class II wells and natural gas. In deciding not to regulate natural gas storage wells as Class II wells, the EPA noted that "underground storage of natural gas poses no threat to USDWs in the vast majority of cases" and that other hydrocarbons "have a greater potential for contaminating water than do gases, which would normally be driven into the atmosphere as soon as the contaminated water was drawn from the tap." 45 Fed. Reg. 33,290, 33,329 (May 19, 1980); see also H.R. Rep. 96-1348 (Sept. 1980) ("Sufficient evidence does not exist indicating that natural gas storage poses a threat to drinking water quality"). The toxicities of the fluids that are injected in Class II wells, such as disposed wastewater, are significantly and materially different and bear no reasonable comparison with the chemical and physical properties of natural gas. For example, brine injected in certain Class II wells has been alleged to contain chlorides, toxic metals, and radioactive substances. See, e.g., Government Accountability Office, Drinking Water: Characterization of Injected Fluids Associated with Oil and Gas Production, at 1 (Sept. 23, 2014); EPA, Class II Oil and Gas Related Injection Wells (Oct. 8, 2015); see also 45

[3] EPA, Underground Injection Control Program Criteria and Standards, Technical amendments to final regulations.

Fed. Reg. 42,472, 42,475 (June 24, 1980)[4] ("After a careful review of the comments on this point, the Agency has decided that further easing of the requirements for gas storage wells is appropriate . . . EPA agrees with the comments that pointed out that unlike the injection of other substances, gas is highly unlikely to result in the chemical contamination of drinking water, even if it migrates from the injection zone.")

Second, the Pre-Rulemaking ignores significant differences in the purposes of Class II wells and natural gas storage wells and how these differences affect siting decisions. Natural gas storage wells are designed not only to inject natural gas, but also to remove it. Accordingly, storage operators seek locations where they can store natural gas in deep, impermeable reservoirs that are isolated from water sources so that no gas is lost – for example, over existing hydrocarbon reservoirs. As noted by the EPA in exempting natural gas storage wells from regulation as Class II wells, "inherent economic reasons compel operators on their own initiative to employ stringent technical controls to prevent loss of an extremely valuable resource." 45 Fed. Reg. 33,290, 33,329; see also H.R. Rep. 96-1348 (Sept. 1980) ("[S]torage Operators have an economic incentive to prevent gas leakages"); 45 Fed. Reg. 42,475 ("[T]he Agency is persuaded by the arguments that these facilities are used to store a valuable commodity and that, therefore, the operator has a strong incentive to be able to recover the stored gas with minimal losses to the environment.").

Conversely, wastewater disposal wells and other Class II wells are not designed with recovery of the fluids injected in mind. The quarter-mile area of review radius, for example, was implemented specifically for UIC Program wells due to these toxicity concerns and the potential effect on water quality. See, e.g., 40 C.F.R. § 146.6(a) (defining the "area of review" for wells regulated under the UIC Program as dependent on the potential for "migration of . . . fluid into an underground source of drinking water"); DOGGR, Final EIR, Analysis of Oil and Gas Well Stimulation Treatments in California, at A-106 (June 2015) ("Previous problems with the disposal of wastewater did not involve inadequate well construction techniques or substandard well integrity. Rather, *past issues were related to the injection of wastewater* into non-exempt aquifers.") (emphasis added). Recognizing these differences between natural gas storage wells and UIC Program wells, including their relative potential to threaten water quality, as noted, Congress expressly exempted natural gas storage wells from the ambit of the SDWA generally and the UIC Program specifically.

3. Area of Review – Proposed Section 1720.1(a)

Proposed Section 1720.1(a) would define the "area of review" as the larger of: (1) the area in which potential migration of injection or formation fluid may occur (commonly referred to as the injection zone); or (2) the area within a quarter-mile radius surrounding the injection well.

This definition is inconsistent with the corresponding definition included in the federal Class II UIC program. Indeed, the federal regulations provide for a flexible approach in determining the appropriate area of review, depending on a number of relevant factors, as discussed further below. Federal regulations do not require a quarter-mile minimum distance for the area of

[4] EPA, Water Programs; Consolidated Permit Regulations and Technical Criteria and Standards; State Underground Injection Control Programs.

review; rather, the radius for the area of review may be determined by a specific, technically supported formula, an example of which is set forth in federal regulations, *or any other formula* so long as certain enumerated factors are taken into account, and may be less than a quarter-mile. In short, Proposed Section 1720.1(a) would supplant the flexible and technically supported approach set forth by federal regulations for an inflexible and arbitrary one-size-fits-all rule that places undue burden on the operator that would not necessarily result in any additional protection for water quality.

When the "area of review" concept was first codified in federal regulations, EPA explained that it was intended to be a flexible concept that should not "place any undue burdens on the owner or operator. It is expected that the injector already has sufficient economic incentive to minimize the unintended leak of injection or produced fluids from the mining site." 45 Fed. Reg. 42,485. Accordingly, the area of review concept, as defined in federal regulations at 40 C.F.R. § 146.6, defines the area of review in terms of the potential to threaten water quality and may be either a quarter-mile around the well at issue or less, depending on the result of a technical formula that takes into account a number of factors, such as hydraulic conductivity of the area, thickness of the injection zone, injection rate, observed hydrostatic pressure, specific gravity of the fluid being injection, among other things. 40 C.F.R. § 146.6(a), (c) ("If the area of review is determined by a mathematical model . . . the permissible radius is the result of such calculation *even if it is less than one-fourth (1/4) mile*.") (emphasis added). Even this formula "was not intended to represent the only acceptable equation to be used in all cases." 45 Fed. Reg. 42,481. The proposed regulations do away with this nuanced, sensible approach in exchange for an inflexible, one-size-fits-all requirement. Even if UIC Program regulations applied to natural gas storage wells (clearly, they do not) this inflexible approach is unwarranted and lacks sufficient technical justification.

In addition, existing natural gas storage projects have years of operational history using the injection zone as the area of review. Existing operators already have many years of well surveys and gas inventory analyses that generally show these wells are not conduits for natural gas within the existing area of review. These tests and decades of historical well operations have generally demonstrated that potential migration through wells outside of the zone of injection is not an issue for existing natural gas storage projects.

SoCalGas requests that the definition of "area of review" be rewritten to include only the definition in proposed Section 1720.1(a)(1). The risk-based assessment this definition reflects is consistent with best practices supported by the record and operational history of natural gas storage projects.

4. Project Data Requirements for Plugged and Abandoned Wells – Sections 1724.7(a)(1)(E)(i) and 1724.7(a)(1)(E)(ii)

Proposed Section 1724.7(a) requires an existing underground injection project operator to provide data that demonstrates to the Division's satisfaction that injected fluid will be confined to the already approved zone of injection and will not cause damage to life, health, property, or natural resources. This includes a demonstration that all idle or plugged and abandoned wells will not be potential conduits for fluid to migrate outside of the approved zone of injection. Per proposed Section 1724.7(a)(1)(E)(i), this demonstration includes providing casing diagrams that

show that cement extends at least 100 feet or 500 feet for plugged and abandoned wells, depending on method of demonstration. When coupled with the proposed expanded definition of area of review, this proposed section would require existing natural gas facility operators to prove or compute that there is sufficient cement on abandoned or plugged wells inside and outside the injection zone. Proposed Section 1724.7(a)(1)(E)(ii) further requires that casing diagrams demonstrate that wells that have not been used for injection or production for more than two years have had cement plugs inserted, effectively requiring abandonment of these wells.

SoCalGas requests clarification that proposed Sections 1724.7(a)(1)(E)(i) and 1724.7(a)(1)(E)(ii) do not apply to existing projects. Operational history and decades of data show that it is unnecessary to require existing operators to comply with proposed Sections 1724.7(a)(1)(E)(i) and 1724.7(a)(1)(E)(ii) in order to accomplish the goals of the regulations. Operators have successfully managed existing natural gas storage projects for decades. Existing storage projects have developed historical data throughout their operational history. Gas inventory analyses, well surveys and gas detection around abandoned and idle wells undertaken as part of existing storage project operations already generally show that plugged and abandoned or idle wells are not conduits for migration. It is unnecessary to require existing natural gas storage projects to undertake the requirements of proposed Sections 1724.7(a)(1)(E)(i) and 1724.7(a)(1)(E)(ii) given the record and their operational history.

These requirements would also be very challenging to apply to an existing natural gas storage facility with multiple wells and could significantly impede operational flexibility. By historical practice, wells at existing natural gas facilities were located based on a variety of factors, including their relation to other wells within the zone of injection. Proposed Section 1724.7(a)(1)(E)(i), in light of the proposed expanded area of review, will implicate a number of abandoned wells that generally have not been conduits for migration of fluids for existing natural gas projects. In order to meet the standards contemplated by the proposed regulations, existing operators would need to undertake extensive testing of these abandoned wells, including drilling out the cement of existing wells outside the injection zone, even though past data and historical operations generally show these wells are not conduits for migration. Testing of these wells will take a substantial amount of time. Until this testing is complete, operators may not be able to operate existing gas storage wells. Further, proposed Section 1724.7(a)(1)(E)(ii) may require that wells be plugged even if they are idle for more than two years while waiting for testing or maintenance. Certain wells may not be used for more than two years because they are intended to operate intermittently in response to reliability issues. Forcing wells to be shut down or plugged in order to comply with proposed Sections 1724.7(a)(1)(E)(i) and 1724.7(a)(1)(E)(ii) will have significant impacts on operation of existing wells and reliability of natural gas systems without achieving anything existing operators do not already accomplish.

5. Other Provisions That Do Not Apply to Natural Gas Wells In An Effective Or Efficient Manner

In addition to the examples provided above, the following provisions appear to be designed to cover water disposal wells and are poor fits for natural gas storage wells. SoCalGas requests clarification of the requirements below, either to state that the regulations are not intended to

apply to natural gas storage wells or to adjust the requirements so they can be applied to natural gas storage wells:

- Injection Fluid Analysis, Proposed Section 1724.7.2 – The testing in the proposed regulations relates to chemicals that are found in fluids associated with water injection wells rather than gas injection wells.

- Step Rate Test, Proposed Section 1724.7.3 – Step rate tests are typically performed in connection with water injection wells and do not provide data applicable to gas storage wells.

- Radioactive Tracer Testing, Proposed Section 1724.10.1(a) – Radioactive tracer testing is useful in conjunction with water injection wells and may be used in natural gas storage wells, but the regulation as written cannot be applied to natural gas storage wells.

SoCalGas is committed to being a good steward of our environment and improving safety at our facilities for our customers, the communities we serve, and our employees. SoCalGas appreciates the opportunity to comment.

Sincerely,

Michael R. Thorp
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Southern California Gas Company